

CLAIMS

What is claimed is:

1. A heavy truck rear suspension consisting of a wheel axle,
said wheel axle being supported by an arm,
said arm being connected to a vehicle frame by a first pivot,
said first pivot being connected to a second pivot,
said second pivot being connected to said vehicle frame on a common axis with
said first pivot,
said axle, said first pivot, and said second pivot being non-coplanar.
2. The heavy truck rear suspension of claim 1 wherein said second pivot is higher
than said first pivot.
3. The heavy truck rear suspension of claim 1 wherein said second pivot is lower
than said first pivot.
4. The heavy truck rear suspension of claim 6 wherein said common axis connecting
said first and second pivots deviates from horizontal by an angle of between 0.5
and 10 degrees.
5. The heavy truck rear suspension of claim 4 wherein said angle is between 1 and 6
degrees.
6. The heavy truck rear suspension of claim 5 wherein said angle is between about 2
and 3 degrees.

7. The heavy truck rear suspension of claim 1 wherein said first and second pivots are connected by a support axle.
8. The heavy truck rear suspension of claim 7 wherein said arm is rigidly connected to said support axle and said support axle is pivotally connected to said vehicle frame
9. The heavy truck rear suspension of claim 8 wherein said support axle comprises an inner cylinder connected between said first pivot and said second pivot, said cylinder having an air flow passage opening through said vehicle frame, and a sleeve rotatably mounted around said inner cylinder, said arm being rigidly connected to said sleeve.
10. The heavy truck rear suspension of claim 8 further comprising a hydraulic cylinder coupled between said arm and said vehicle frame, said hydraulic cylinder raising and lowering said vehicle frame with respect to said wheel axle and simultaneously causing said wheel axle to pivot with respect to said vehicle frame.
11. The heavy truck rear suspension of claim 8 further comprising an air bellows connected between said support axle and said vehicle frame, said air bellows raising and lowering said heavy truck rear frame with respect to said wheel axle and simultaneously causing said wheel axle to pivot with respect to said vehicle frame.

12. The heavy truck rear suspension of claim 1 wherein said heavy truck rear suspension further comprises at least one motor coupled to said wheel axle.
13. The heavy truck rear suspension of claim 1 wherein said vehicle frame further comprises an inner wall and an outer wall and said wheel axle is mounted between said inner and outer walls being supported by an inner arm and an outer arm, said inner arm being connected to said first pivot, said first pivot being connected to said inner wall of said vehicle frame, said outer arm being connected to said second pivot, said second pivot being connected to said outer wall of said vehicle frame.
14. The heavy truck rear suspension of claim 13 wherein said first and second pivots are connected by a support axle and said first arm and said second arm are rigidly connected to said support axle and said support axle is pivotally connected to said vehicle frame
15. The heavy truck rear suspension of claim 13 further comprising a hydraulic cylinder coupled between at least one of said first and second arms and said vehicle frame, said hydraulic cylinder raising and lowering said vehicle frame with respect said wheel and simultaneously causing said wheel to pivot with respect to said vehicle frame.

16. The heavy truck rear suspension of claim 13 further comprising an air bellows connected between at least one of said first and second arms and said vehicle frame, said air bellows raising and lowering said vehicle frame with respect to said wheel axle and simultaneously causing said wheel axle to pivot with respect to said vehicle frame.
17. The heavy truck rear suspension of claim 14 wherein said support axle comprises an inner cylinder connected between said first pivot and said second pivot, said cylinder having an air flow passage opening through said vehicle frame, and a sleeve rotatably mounted around said inner cylinder, said first and second arms being rigidly connected to said sleeve.
18. The heavy truck rear suspension of claim 1 further comprising means for pivoting said wheel, control means for automatically controlling said pivoting means and a sensor coupled to said control means, said sensor producing a signal representative of motion of said vehicle, said control means responsive to said sensor.